



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,383	07/03/2001	Scott A. Chalmers	02578.0006.CPUS01	3031

22930 7590 09/23/2004

HOWREY SIMON ARNOLD & WHITE LLP  
ATTEN: MARGARET P. DROSOS, DIRECTOR OF IP ADMIN  
2941 FAIRVIEW PARK DR, BOX 7  
FALLS CHURCH, VA 22042

EXAMINER

PHAM, HOA Q

ART UNIT PAPER NUMBER

2877

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/899,383	<b>Applicant(s)</b> CHALMERS ET AL.	
	<b>Examiner</b> Hoa Q. Pham	<b>Art Unit</b> 2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 66-90 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 66-90 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. With respect to the amendment filed on 6/28/04, claims 66-90 are pending in this application.

***Specification***

2. The amendment filed 6/24/04 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the limitation "said processing means determines a process endpoint" in claims 68, 71, 74, 77, 80 and 86 is not supported by the original disclosure.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

3. Claims 68, 71, 74, 77, 80, and 86 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As mentioned above, the limitation in claims 68, 71, 74, 77, 80 and 86 is not supported.
4. Claim 73 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

Art Unit: 2877

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 73 is dependent on itself.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 66-67, 69-70, 72-73, 75-76, 78-79, 81-85, 87-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka et al (JP-411220004A) in view of Cabib et al (5,856,871) and Finland reference (*ImSpector* imaging Spectrograph brochure including specifications, **Spectral Imaging Ltd.**) (of record).

Regarding claims 66-67, 69-70, 72-73, 75-76, 78-79, 84-85, 87-88 and 89-90; Muraoka et al discloses a plurality of stations (10, 20, 30, 40, 50) involved in performing on or more aspects of the CVD process; a wafer transfer mechanism (60) disposed within the system (1) to transfer the wafer (9) between stations, a film thickness measuring section (70) for measuring the thickness of the wafer while the thickness measuring section and the wafer undergo relative motion provided by the wafer transfer mechanism (see abstract and figures 1, 3, 4, and 5). Muraoka et al does not explicitly teach that the thickness measuring section is an imaging spectrometer for deriving a plurality of one-spatial-dimension spectral images. However, such a feature is known in the art as taught by Cabib et al and Finland reference. Cabib et al teaches that an

Art Unit: 2877

imaging spectrometer or spectral imager using for resource mapping of the earth surface from airplanes and satellites could be used for film thickness mapping (column 2 lines 8-23). Furthermore, Finland reference teaches that imaging spectrometer is a one-spatial-dimension imaging spectrometer (figure in page 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the thickness measuring section of Muraoka et al by an imaging spectrometer or spectral imager taught by Cabib et al and Finland reference because Cabib teaches that the spectral imager can be used for resource mapping of the earth surface from airplanes and satellites could be used for the same purpose of film thickness mapping and Finland reference teaches the use of an imaging spectrometer.

Regarding claim 81, Muraoka teaches an etching section (30) (see abstract).

Regarding claim 82, see figure 1 of Muraoka et al for loading and unloading sections (10,20).

Regarding claim 83, Cabib et al teaches the use of a continuous light source (10).

7. Claims 68, 71, 74, 77, 80, and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka et al, Cabib et al and Finland reference as applied to claims 66-67, 69-70, 72-73, 75-76, 78-79, 81-85, 87-90 above, and further in view of Moriyama et al (5,609,511).

Muraoka et al does not explicitly teach that the processing means could be used to detect endpoint; however, such a feature is known in the art as taught by Moriyama

Art Unit: 2877

et al. Moriyama et al, from the same field of endeavor, discloses a polishing method in which the thickness of the thin film is determined on the basis of endpoint detection (see column 3 lines 5-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Muraoka et al a step of detecting the endpoint before the step of measuring the thickness. The rationale for this modification would have arisen from the fact that in polishing chamber (CMP process) the accuracy of the thickness measurement is obtained when endpoint detection is performed.


8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishizawa et al (6,162,010) discloses a method for recovering object to be treated after interruption.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoa Q. Pham  
Primary Examiner  
Art Unit 2877

HP  
September 17, 2004